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(54) Container particularly for fruit and vegetable produce

(57) A container particularly suitable for fruit and vegetable produce comprises a body 15 and a lid 16 having a generally rectangular base 17 and top 18 with bevelled corners 19. The lid 16 and body 15 can be closed one against the other by rotation about a hinge 20 and retained by press studs 21 located on mating surfaces 23 in the corners and along strips opposite to the hinge. Hollow ribs 24 and 24' extend over at least part of the base and top and allow air to circulate through holes 25 when a group of containers are stacked.

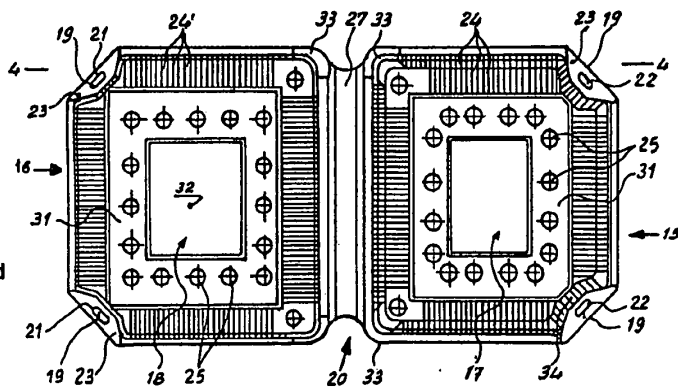
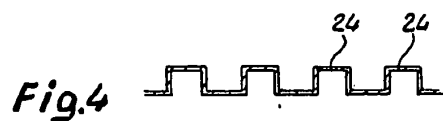
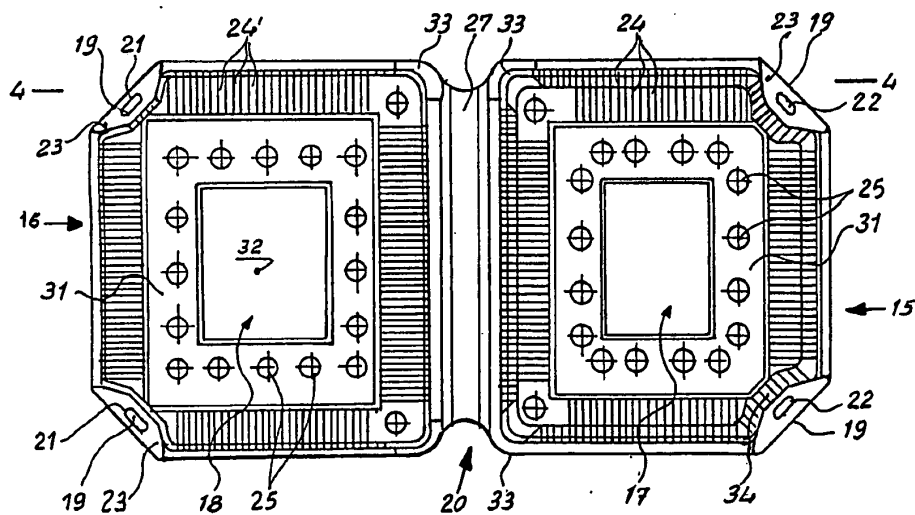
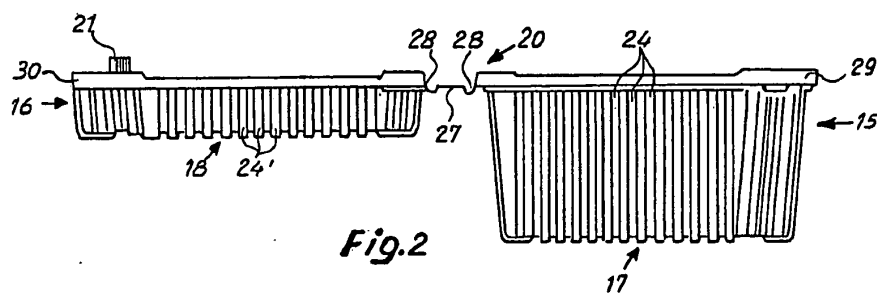
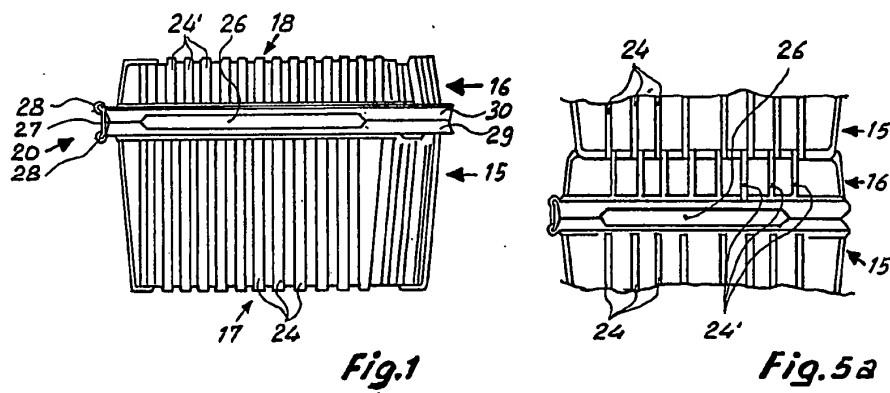


Fig.3

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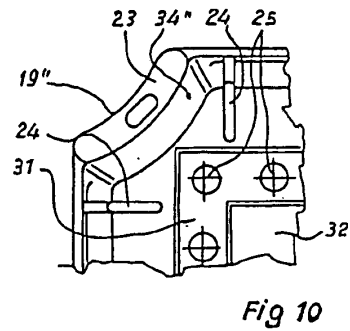
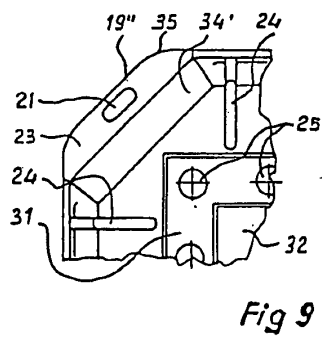
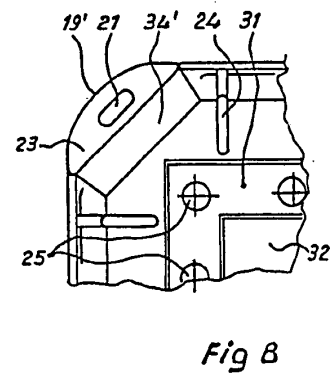
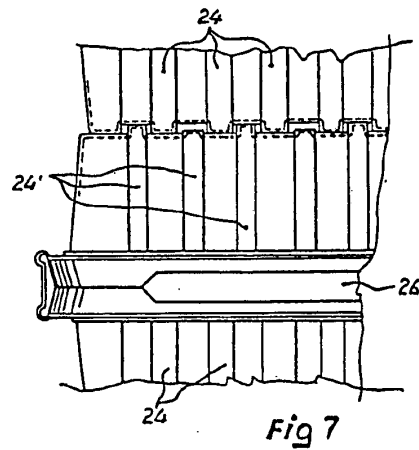
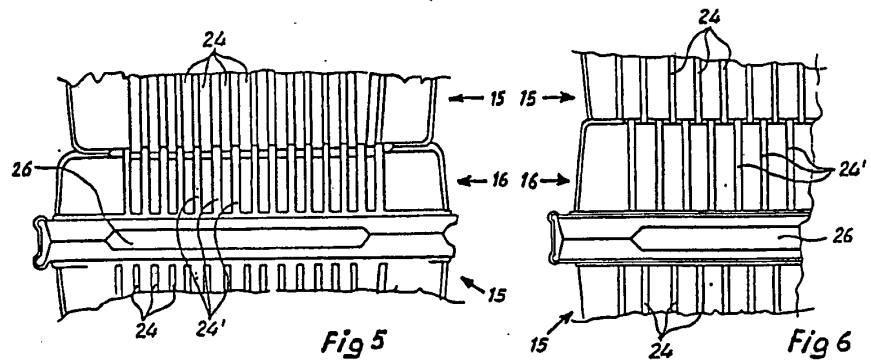
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SPECIFICATION

Improved container particularly for fruit and vegetable produce

5 The invention relates to a container which is particularly suitable for fruit and vegetable produce such as cherries, strawberries and the like, which can be stowed in cartons or boxes having corners with a triangular base.

10 Known containers of the above mentioned type are open at the top, usually end in an octagonal upper edge thus causing considerable loss of useful space for the purpose of packaging, cannot be easily and safely stacked on sales counters, and are not easily carried by purchasers.

Normally they are each wrapped with a thin transparent film before being exposed on sales counters.

20 Removal of the containers from the box containing them and their subsequent film wrapping are operations which are anything but convenient because the elastically yielding edges of the containers do not provide a firm handhold for the person handling them nor assist in the wrapping operation, which appreciably accelerates deterioration of the produce through lack of ventilation.

30 In addition thereto, these containers are particularly yielding along the bottom edge and deform easily, for example when the purchaser places them haphazardly together with other particularly rigid products in a plastic bag.

35 It is an object of the invention to at least minimize the disadvantages mentioned above.

According to the present invention there is provided a container which is particularly suitable for fruit and vegetable produce manufactured from synthetic thermoplastics material and capable of being stowed in boxes and/or cartons provided with corners having a triangular base, characterised in that it comprises a body and a lid having a substantially rectangular base and top with bevels at the two corners joined by a common side, having side walls diverging from the top and the base, the said body and the said lid being held together and being folded one against the other by means of a hinge provided at the end of the distal side walls of the said bevels and being connected together by means of fastenings of the press stud type located on mating surfaces between the body and the lid located at the above mentioned bevels, in which the edges of the base and top are strengthened by outwardly projecting hollow ribs which respectively pass across them extending over at least part of the base and the top and are of different length, and in which the gaps between the parts of the said ribs on the said base and top permit air to pass in the direction of holes provided in the base and top even when the closed containers are stacked on top of each other.

The main advantages attributable to the container according to the invention lie in overcoming the loss of useful space for the purpose of packaging in boxes or cartons having corners with a triangular base, in preventing easy deformation of the bottom edges of the container and the top edges of the corresponding lid, in providing optimum aeration of the produce contained therein and in aiding optimum and stable stacking of the containers on sales counters.

The present invention will be further illustrated, by way of example, with reference to the accompanying drawings, in which:

80 Fig. 1 is a side view of a closed container; Fig. 2 is a side view of the same container as in Fig. 1 with the lid in an open position; Fig. 3 is a plan view of the arrangement of Fig. 2;

85 Fig. 4 is a cross-section of some grooves along the line 4—4 of Fig. 3;

Figs. 5 and 5a are vertically truncated partial side views of two containers placed one above the other, with variant grooves;

90 Figs. 6 and 7 are laterally and vertically truncated partial views of two other containers placed one above the other with different grooving; and

Figs. 8, 9 and 10 are plan views of three variant embodiments of the bevels in the lid.

The figures are to different scales and identical reference numbers therein indicate identical or equivalent parts.

With reference to Fig. 1 to 3, the container, which is constructed by the thermoforming of a sheet of synthetic transparent material, consists of a body 15 and a lid 16, each having an effectively rectangular base 17 and top 18 respectively with straight bevels 19 corresponding to the two corners joined by one side and lateral walls diverging from the said base and the said top ending in borders 29, 30 respectively of body 15 and lid 16.

The body 15 and the lid 16 are held together and may be folded against each other by means of a hinge 20 consisting of a connecting rib 27 between the body 15 and the lid 16 provided the plane passing through the lower extremity of borders 29 and 30 while the body 15 and the lid 16 are in an open position as shown in Fig. 2.

Two grooves 28 are provided in this rib 27 and the lid 16 is caused to rotate around the axes thereof in order to close against the body 15 by means of male 21 and female 22 press studs located on mating surfaces 23 between the body 15 and the lid 16 in the vicinity of the bevels 19.

This rib 27, as shown in Fig. 3, is of lesser length than the sides joined thereby and its two extremities are connected by an arc of a circle to the bottom parts of borders 29 and 30.

These connections in the form of a circular arc and the relative length of the rib 27 per-

vent the formation of sharp ends when the lid 16 is in the closed position on the body 15, thus reducing the possibility of tearing a plastic bag in which containers in accordance with the invention have been randomly packed.

The edges of the base 17 and the top 18 are strengthened by means of hollow ribs 24 and 24' which project towards the exterior of the body 15 and the lid 16 respectively, pass through the said edges and extend over part of the base and the top and the side walls.

Along the ends of the said ribs, 24 and the base 17 and 24' on the top 18, there runs a flat strip 31 which surrounds a truncated pyramidal projection or recess 32. This strip, although not shown in the drawings, may also extend in the direction of the four corners of base 17.

The ribs 24, 24' are of square cross-section as shown in Fig. 4 but it is clear that these may have any polygonal or semicircular cross-section and be of different lengths.

Circular holes 25 are provided in strip 31 and through these holes air may enter or leave the body 15 and the lid 16 as a result of the gaps between the parts of the ribs 24 provided on the base 17 and 24' on the top 18 even when the containers are stacked on sales counters.

This vertical ventilation within the container together with the horizontal ventilation provided by openings 26, see Fig. 1, obtained by opposing recesses in the borders 29 and 30 along three sides of the container, prevent the formation of condensation on the products contained in the container and considerably slow natural deterioration of the produce due to lack of ventilation.

In containers which are stacked one on the top of another, the passage of air in the gaps between the parts of the ribs 24 and 24' in the top and base in the direction of the holes 25 is ensured by means of the parts of the ribs 24 and the base 17 which are of constant width and height, equal to the width and height respectively of the parts of the ribs 24' on the top 18, and by means of the gaps between the said parts of the ribs 24, 24' on the top and base which are of constant width greater than the width of the said parts of the ribs 24 and 24' as illustrated in Fig. 6.

Likewise passage of air in the gaps between the parts of the ribs 24 and 24' on the base and the top in the direction of holes 25 is ensured by means of the parts of the ribs 24 on the base 17 which are of constant width and have a constant spacing equal respectively to the width and spacing of the parts of the ribs 24' on the top 18 and are of a constant but different height to the latter as illustrated in Fig. 5.

This vertical aeration can also be achieved by providing the parts of the ribs 24 on the base 17 with widths and spacings which are of constant different dimensions to each other

and in which the parts of the ribs 24' on the top 18 have widths and spacings which are of constant different dimensions, wherein the parts of the ribs 24 on the base 17 are of constant height while at least one of the parts of the ribs 24' on the top 18 is of a height less than the constant depth of the gaps provided between the parts of the ribs 24 on the base 17 as illustrated in Fig. 7.

With particular reference to Fig. 5a it will be seen that the parts of the ribs 14 on the base of the body 15 are of constant width and height, equal to the width and height respectively of the parts of the ribs 24' on the top of the lid 16. The intervals between the said ribs are of constant width with the exception of one on the base of the body 15 which is of a different width from the remainder and corresponds to the sum of the width of a gap and a rib plus the width of a rib.

Even if not illustrated in the drawings it is clear that the ribs in Fig. 5a, like those in Fig. 5, may be constructed to be of constant height but of different dimensions. For example the height of the ribs on the top 18 may be constructed to be less than the height of the ribs on the base 17, or vice versa.

As shown in Figs. 5, 5a, 6 and 7, the parts of the ribs 24' on the top of the lid 16 are staggered with respect to those 24 provided on the base of the body 15 in order to guarantee that the containers have stability even when stacked hurriedly on sales counters. In fact the ribs 24' provided on this top by wedging in the gaps between the ribs 24 of the said base of the overlying container prevent the latter from sliding laterally with respect to the one below.

With reference to Fig. 8, it will be noted that bevel 19' is rounded convexly outwards and that portion 34' of the side wall relating thereto is straight, of decreasing width from top to bottom. In Fig. 3 on the other hand, portion 34 of the side wall associated with rebate 19 consists of three segments of wall forming an outward concavity which narrows towards the base.

The construction of bevel 19" in Fig. 9 differs from that illustrated in Fig. 3 in having a straight portion to the ends with portions 35 with a broad outward convex curvature, while portion 34' of the walls associated therewith is straight of width narrowing from top to bottom similar to that in Fig. 8.

In the variant in Fig. 10, bevel 19''' is arched concavely outwards similar to wall 34" associated therewith, the width of which narrows from top to bottom.

125 CLAIMS

1. A container which is particularly suitable for fruit and vegetable produce manufactured from synthetic thermoplastics material and capable of being stowed in boxes and/or carts provided with corners having a triangular

base, characterised in that it comprises a body and a lid having a substantially rectangular base and top with bevels at the two corners joined by a common side, having side walls diverging from the top and the base, the said body and the said lid being held together and being folded one against the other by means of a hinge provided at the end of the distal side walls of the said bevels and being connected together by means of fastenings of the press stud type located on mating surfaces between the body and the lid located at the above mentioned bevels, in which the edges of the base and top are strengthened by outwardly projecting hollow ribs which respectively pass across them extending over at least part of the base and the top and are of different length, and in which the gaps between the parts of the said ribs on the said base and top permit air to pass in the direction of holes provided in the base and top even when the closed containers are stacked on top of each other.

2. A container according to claim 1, in which the parts of the ribs on the base are of constant width and are constantly spaced and are respectively equal to the width and the spacing of the parts of the ribs on the top, and are of a constant depth which differs from the depth of the ribs on the top.

3. A container according to claim 1, in which the parts of the ribs on the base are of constant width and height, equal to the width and height respectively of the parts of the ribs on the top, and in which the gaps between the said parts of the ribs on the top and the base are of constant width greater than the width between the said parts of the ribs.

4. A container according to claim 1, in which the parts of ribs on the base are of constant width and height, equal respectively to the width and height of the parts of the ribs on the top, and in which the gaps between the said ribs are of constant width with the exception of at least one on the base or the top, characterised in that the said gap is of different width to the remainder and corresponds to a multiple of the sum of the width of a gap and a rib, this multiple being supplemented by the width of one rib.

5. A container according to claim 4, in which the axis of the gap on the base or the top of a width different from that of the remaining gaps coincides with the median longitudinal or transverse axis of the said top or base.

6. A container according to claim 1, in which the parts of the ribs on the base are of constant width, equal to the width of the parts of the ribs on the top, and of a height different from the height of the said ribs on the top and in which the gaps between the said ribs are of constant width with the exception of at least one on the base or the top, characterised in that the said gap is of

different width from the remainder and corresponds to a multiple of the sum of the width of one gap and a rib, this multiple being supplemented by the width of one rib.

7. A container according to claim 1, in which the parts of the ribs on the base have widths and gap widths which are of constant dimensions differing from one another and in which the parts of the ribs on the top have widths and gap widths which are constant but dimensionally different from each other, characterised in that the parts of the ribs on the base are of constant height and in that at least one of the parts of the ribs on the top is of a height less than the constant depth of the gaps provided between the parts of the ribs on the base.

8. A container in accordance with any one of claims 2 to 7, in which the parts of the ribs provided on the base are staggered with respect to the parts of the ribs provided on the top.

9. A container according to claim 1, in which the mating surfaces between the body and the lid together with the mating surfaces proximate to the hinge bound ventilation openings between the body and the lid.

10. A container according to claim 1, in which the hinge consists of a rib and two channels around the axis of which the lid may be rotated to close it against the body.

11. A container according to claim 1, in which the hinge has the rib in the same plane as the plane passing through the lower part of the borders of the lid and the body respectively when these are in the open position.

12. A container according to claim 1, in which the hinge is of a lesser length than the walls which it joins.

13. A container according to claim 1, in which the bottom parts of the borders of the body and the lid associated with the hinge are connected by means of an arc of a circle.

14. A container according to claim 1, in which the holes are made in a flat strip lying between the ends of the parts of the ribs on the base and the top and a truncated pyramidal projection or recess.

15. A container according to claim 1, in which the edges and the places where the edges meet when turned outwards are of rounded shape.

16. A container according to claim 1, in which the bevel is straight and the portion of the side wall associated with it consists of three segments of wall forming a concavity on the outside and narrow wing towards the base.

17. A container according to claim 1, in which the bevel is convexly rounded outwards and the portion of the side wall associated therewith is straight and decreases in width from top to bottom.

18. A container according to claim 1, in which the bevel is straight and has ends with lengths having a broad outwardly convex cur-

vature, and in which the portion of the walls associated therewith is straight and of decreasing width from top to bottom.

19. A container according to claim 1, in
5 which the bevel is concavely rounded outwards similar to the portion of the side wall associated therewith which is of a width which narrows from top to bottom.

20. A container, substantially as hereinbe-
10 fore described with reference to the accompanying drawings.

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